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of the sense organs accompanies regeneration of the nerve, one would expect to find the first regenerated sense organ in the region of the regenerated nerve. At fifty-six days there was evidence of regeneration in the sense organs and it occurred very near the region of the regenerating nerve. Following the lateral-line posteriorly beyond the cut the first two sense organs in this region had not regenerated, but on the site of the third sense organ regeneration of the supporting cells had occurred. Next followed a degenerated sense organ after which came a regenerated one, indistinct in outline, but with three or four sensory cells. Continuing beyond this there were no more regenerated organs.

Ninety-eight days after cutting the nerve regenerated sense organs occurred in consecutive positions. The sense organs regenerate element by element as they degenerated. The supporting cells differentiate before the sensory cells do. The completely regenerated sense organs appear quite normal.

From the above data it may be concluded that degeneration of the lateral-line organs in *Amiurus* occurs within fourteen days after cutting the lateral nerve and that regeneration of these organs takes place after fifty-six days.

Olmsted, J. M. D. 1920a. The nerve as a formative influence in the development of taste buds. *J. Comp. Neur.*, **31**, (465-468).

Olmsted, J. M. D. 1920b. The Results of Cutting the Seventh Cranial Nerve in *Amiurus nebulosus* (Lesueur). *J. Exp. Zool.*, **31**, (369-401).

THE ISOLATION OF PYRIMIDINES FROM THE NUCLEIC ACID OF TUBERCLE BACILLUS

BY TREAT B. JOHNSON AND ELMER B. BROWN

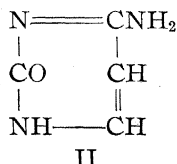
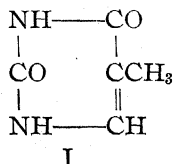
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Communicated May 23, 1922

This paper is a preliminary announcement of results which have been obtained in an investigation of the nucleic acid of tubercle bacillus. This research was supported in part by funds provided for the work by the National Tuberculosis Association. The raw material employed in the research was obtained through the coöperation of Dr. Esmond R. Long of Sprague Institute, Chicago, Illinois.

With the quantity of tubercle bacillus placed at our disposal it has been possible to isolate the nucleic acid in sufficient quantity for hydrolysis and to make an accurate determination of the pyrimidines contained therein. We find that this nucleic acid is characterized by the fact that it does not

contain uracil. At least we found no evidence of its presence in the product which we investigated. We have succeeded, however, in isolating in a pure condition the two pyrimidines, thymine I and cytosine II.



Both pyrimidines were obtained in sufficient quantity for analysis and their constitution further established by the color reactions¹ characteristic of these two compounds, respectively. The two products isolated were compared with the pyrimidines obtained by synthesis and found to agree in every respect in chemical and physical properties. The further study of the chemistry of tubercle bacillus is in progress and the results of the investigation just finished will soon be published in *The American Review of Tuberculosis* and the *Journal of Biological Chemistry*.

¹ Wheeler and Johnson, *J. Biol. Chem.*, **3**, 1907 (183). Johnson and Baudisch, *J. Amer. Chem. Soc.*, **43**, 1921 (2670) and *Ber.*, **55**, 1921 (18).

THE RELATIVE SENSITIVITY OF THE EAR AT DIFFERENT LEVELS OF LOUDNESS

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Read before the Academy, April 25, 1922

The threshold sensitivity of the ear for tones of various frequencies has been studied by many investigators. In order to determine the relative sensitivity at higher intensity levels, an alternation phonometer has been devised which permits balancing two tones of different frequency for equality of loudness.

The apparatus (fig. 1) consists of two vacuum tube oscillators, independently controlled, which through a relay commutator alternately supply current to a sound generator (either thermal or electromagnetic). The commutator is a polarized telegraph relay, driven at a suitable speed from another such relay. The commutating relay is adjusted to give a contact time of 1/25 second on each side, with a silent interval of 1/1000 second required for armature travel between contacts. This device differs in principle from the flicker photometer in that fluctuations in intensity are not caused to disappear and subjective fusion of the tones compared does not take place.* The interval (2/1000 second) through which auditory sensation persists after cessation of the physical stimulus